



HIGH PERFORMANCE CUTTING TOOLS

AEROSPACE AND
DEFENSE APPROVED
ANSI & NAS 986 SPECIFICATION



WWW.NCTOOLSERVICE.COM

Info@nctoolservice.com
(888) 857-6835


Mobile Inventory
Same Day Delivery
(most items)



2FLUTE

HIGH PERFORMANCE

- ZrN recommended (up to 25% faster than uncoated)
- Radii available upon request
- Left Hand available upon request
- Flats added
- 45° Helix

FRACTIONAL

Cutting Dia	Shank	LOC	OAL	Part# Square	Square Price	Available Radius				Ball/Radius Price			
1/4	1/4	3/8	2	224041	\$20.32	.015	.030	.060		\$33.12			
1/4	1/4	3/4	2 1/2	224042	\$23.31	.015	.030	.060		\$36.11			
1/4	1/4	1 1/4	3	224043	\$34.88	.015	.030	.060		\$47.68			
1/4	1/4	1 1/2	4	224044	\$39.98	.015	.030	.060		\$52.78			
1/4	1/4	2	4	224045	\$45.39	.015	.030	.060		\$58.19			
5/16	5/16	7/16	2	224051	\$23.28	.015	.030	.060		\$36.08			
5/16	5/16	13/16	2 1/2	224052	\$26.35	.015	.030	.060		\$39.15			
5/16	5/16	1 1/4	3	224053	\$46.61	.015	.030	.060		\$59.41			
5/16	5/16	1 5/8	4	224054	\$52.14	.015	.030	.060		\$64.94			
5/16	5/16	2 1/8	4	224055	\$54.05	.015	.030	.060		\$66.85			
3/8	3/8	1/2	2	224061	\$26.61	.015	.030	.060	.090	.125	\$39.41		
3/8	3/8	1	2 1/2	224062	\$29.94	.015	.030	.060	.090	.125	\$42.74		
3/8	3/8	1 1/4	3	224063	\$35.65	.015	.030	.060	.090	.125	\$48.45		
3/8	3/8	1 1/2	4	224064	\$41.38	.015	.030	.060	.090	.125	\$54.18		
3/8	3/8	2	4	224065	\$51.81	.015	.030	.060	.090	.125	\$64.61		
3/8	3/8	2 1/2	6	224066	\$71.50	.015	.030	.060	.090	.125	\$84.30		
1/2	1/2	5/8	2 1/2	224081	\$39.92	.015	.030	.060	.090	.125	\$52.72		
1/2	1/2	1 1/4	3	224082	\$44.45	.015	.030	.060	.090	.125	\$57.25		
1/2	1/2	1 5/8	4	224083	\$54.88	.015	.030	.060	.090	.125	\$67.68		
1/2	1/2	2	4	224084	\$63.92	.015	.030	.060	.090	.125	\$76.72		
1/2	1/2	2 1/2	5	224085	\$93.20	.015	.030	.060	.090	.125	\$106.00		
1/2	1/2	3 1/8	6	224086	\$119.47	.015	.030	.060	.090	.125	\$132.27		
5/8	5/8	3/4	3	224101	\$82.59	.015	.030	.060	.090	.125	\$96.19		
5/8	5/8	1 5/8	3 1/2	224102	\$92.48	.015	.030	.060	.090	.125	\$106.08		
5/8	5/8	2 1/8	4	224103	\$109.17	.015	.030	.060	.090	.125	\$122.77		
5/8	5/8	2 1/2	5	224104	\$123.74	.015	.030	.060	.090	.125	\$137.34		
5/8	5/8	3 1/4	6	224105	\$153.37	.015	.030	.060	.090	.125	\$166.97		
5/8	5/8	3 3/4	6	224106	\$161.45	.015	.030	.060	.090	.125	\$175.05		
3/4	3/4	1	3	224121	\$114.34	.015	.030	.060	.090	.125	.156	.188	\$127.94
3/4	3/4	1 5/8	4	224122	\$121.55	.015	.030	.060	.090	.125	.156	.188	\$135.15
3/4	3/4	2 1/4	5	224123	\$158.34	.015	.030	.060	.090	.125	.156	.188	\$171.94
3/4	3/4	3 1/4	6	224124	\$172.09	.015	.030	.060	.090	.125	.156	.188	\$185.69
3/4	3/4	4	7	224125	\$274.07	.015	.030	.060	.090	.125	.156	.188	\$287.67
1	1	1 1/4	4	224161	\$198.87	.015	.030	.060	.090	.125	.156	.188	\$212.47
1	1	2	5	224162	\$212.13	.015	.030	.060	.090	.125	.156	.188	\$225.73
1	1	2 5/8	5	224163	\$236.93	.015	.030	.060	.090	.125	.156	.188	\$250.53
1	1	3 1/4	6	224164	\$249.34	.015	.030	.060	.090	.125	.156	.188	\$262.94
1	1	4 1/8	7	224165	\$358.14	.015	.030	.060	.090	.125	.156	.188	\$371.74

NOTE: When ordering with ball, include
the part number + the letter "B".
Example: (224XXX(Part#) + B(ball) = **224043B**)

NOTE: When ordering with radius, include the part number.
Example: (224XXX(Part#) + .015(radius) = **224043-.015**)

2FLUTE

HIGH PERFORMANCE



Tolerance

Cutting Diameter (D1)	Shank Diameter (D2)	
1/8"-1/4": +.000"/-.0012"	1/8"-1/4": -.0001"/-.0003"	(D1) +0.00mm -0.013mm
1/4"-1/2": +.000"/-.0016"	1/4"-1/2": -.0001"/-.0003"	(D2) h6
1/2"-1": +.000"/-.0020"	1/2"-1": -.0001"/-.0004"	

Runout 0.0005"max (shank to cutting diameter)

Back Taper 0.0005"max | Ball Nose Radius +.000/- .001"

EXTENDED NECK

Cutting Dia	Shank Dia	LOC	LBS	OAL	Part# Square	Square Price	Available Radius					Ball/Radius Price		
1/4	1/4	7/8	2	4	N224041	\$42.94	.015	.030	.060			\$55.74		
1/4	1/4	7/8	3	5	N224042	\$50.24	.015	.030	.060			\$63.04		
1/4	1/4	1	4	6	N224043	\$53.78	.015	.030	.060			\$66.58		
5/16	5/16	7/8	2	4	N224051	\$55.65	.015	.030	.060			\$68.45		
5/16	5/16	1	3	6	N224052	\$61.63	.015	.030	.060			\$74.43		
3/8	3/8	1	2	4	N224061	\$47.42	.015	.030	.060			\$60.22		
3/8	3/8	1	3	5	N224062	\$61.63	.015	.030	.060			\$74.43		
3/8	3/8	1	4	6	N224063	\$71.50	.015	.030	.060			\$84.30		
1/2	1/2	1	1 7/8	4	N224081	\$63.92	.015	.030	.060			\$76.72		
1/2	1/2	1 1/4	2 1/4	5	N224082	\$98.11	.015	.030	.060			\$110.91		
1/2	1/2	1 1/4	3 1/8	6	N224083	\$119.47	.015	.030	.060	.090	.125	\$132.27		
1/2	1/2	1 1/4	4 1/8	7	N224084	\$140.72	.015	.030	.060	.090	.125	\$153.52		
1/2	1/2	1 1/4	5 1/4	8	N224085	\$159.92	.015	.030	.060	.090	.125	\$172.72		
5/8	5/8	1 1/4	2 1/4	5	N224101	\$123.74	.015	.030	.060	.090	.125	\$137.34		
5/8	5/8	1 1/4	3 1/8	6	N224102	\$161.45	.015	.030	.060	.090	.125	\$175.05		
5/8	5/8	1 1/2	4 1/4	8	N224103	\$223.74	.015	.030	.060	.090	.125	\$237.34		
3/4	3/4	1 1/4	2 1/4	5	N224121	\$158.34	.015	.030	.060	.090	.125	.156	.188	\$171.94
3/4	3/4	1 1/2	3 1/8	6	N224122	\$172.09	.015	.030	.060	.090	.125	.156	.188	\$185.69
3/4	3/4	1 1/2	4 1/4	7	N224123	\$274.07	.015	.030	.060	.090	.125	.156	.188	\$287.67
3/4	3/4	1 1/2	5 1/4	8	N224124	\$318.12	.015	.030	.060	.090	.125	.156	.188	\$331.72
1	1	1 1/2	2 1/4	5	N224161	\$236.96	.015	.030	.060	.090	.125	.156	.188	\$250.56
1	1	1 1/2	3 1/8	6	N224162	\$252.74	.015	.030	.060	.090	.125	.156	.188	\$266.34
1	1	1 1/2	4 1/8	7	N224163	\$366.64	.015	.030	.060	.090	.125	.156	.188	\$380.24
1	1	1 1/2	5 1/4	8	N224164	\$431.21	.015	.030	.060	.090	.125	.156	.188	\$444.81

** 3/8" and over require Flat **

	Milling SFM(Vc)		Chipload per Tooth Recommendations(CPT)							Profiling Radial		Slotting Axial
Materials	Uncoated Min.-Max	ZrN Min.-Max	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	ADC	RDC	(ADC)
Wrought Aluminum Alloys	1575 - 6500	1575 - 6550	.0025	.0029	.0033	.0055	.0067	.0082	.0096	1xD	.5xD	1xD
Low- Silicon Aluminum Alloys Si <12.2% - 6061, 7075	1575 - 4500	1575 - 6550	.0022	.0025	.0028	.0052	.0063	.0073	.0090	1xD	.5xD	1xD

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3 FLUTE FINISHER

- ZrN recommended (up to 30% faster then uncoated)
- Radii available upon request
- Left Hand available upon request
- Flats added
- 37° Helix

FRACTIONAL

Cutting Dia	Shank	LOC	OAL	Part# Square	Square Price	Available Radius				Radius Price
1/4	1/4	3/8	2	337041	\$22.30	.015	.030	.060		\$35.10
1/4	1/4	3/4	2 1/2	337042	\$24.53	.015	.030	.060		\$37.33
1/4	1/4	1 1/4	3	337043	\$35.98	.015	.030	.060		\$48.78
1/4	1/4	1 1/2	4	337044	\$41.17	.015	.030	.060		\$53.97
1/4	1/4	2	4	337045	\$47.54	.015	.030	.060		\$60.34
5/16	5/16	7/16	2	337051	\$25.25	.015	.030	.060		\$38.05
5/16	5/16	13/16	2 1/2	337052	\$28.56	.015	.030	.060		\$41.36
5/16	5/16	1 1/4	3	337053	\$49.36	.015	.030	.060		\$62.16
5/16	5/16	1 5/8	4	337054	\$54.02	.015	.030	.060		\$66.82
5/16	5/16	2 1/8	4	337055	\$57.17	.015	.030	.060		\$69.97
3/8	3/8	1/2	2	337061	\$29.10	.015	.030	.060	.090	\$41.90
3/8	3/8	1	2 1/2	337062	\$33.22	.015	.030	.060	.090	\$46.02
3/8	3/8	1 1/4	3	337063	\$39.27	.015	.030	.060	.090	\$52.87
3/8	3/8	1 1/2	4	337064	\$40.70	.015	.030	.060	.090	\$53.50
3/8	3/8	2	4	337065	\$48.86	.015	.030	.060	.090	\$61.66
3/8	3/8	2 1/2	6	337066	\$71.31	.015	.030	.060	.090	\$84.11
1/2	1/2	5/8	2 1/2	337081	\$44.08	.015	.030	.060	.090	\$56.88
1/2	1/2	1 1/4	3	337082	\$45.78	.015	.030	.060	.090	\$58.58
1/2	1/2	1 5/8	4	337083	\$56.53	.015	.030	.060	.090	\$69.33
1/2	1/2	2	4	337084	\$67.12	.015	.030	.060	.090	\$79.92
1/2	1/2	2 1/2	5	337085	\$95.98	.015	.030	.060	.090	\$108.78
1/2	1/2	3 1/8	6	337086	\$119.47	.015	.030	.060	.090	\$132.27
5/8	5/8	3/4	3	337101	\$84.75	.015	.030	.060	.090	\$98.35
5/8	5/8	1 5/8	3 1/2	337102	\$94.95	.015	.030	.060	.090	\$108.55
5/8	5/8	2 1/8	4	337103	\$114.44	.015	.030	.060	.090	\$128.04
5/8	5/8	2 1/2	5	337104	\$133.64	.015	.030	.060	.090	\$147.24
5/8	5/8	3 1/4	6	337105	\$161.87	.015	.030	.060	.090	\$175.47
5/8	5/8	3 3/4	6	337106	\$172.35	.015	.030	.060	.090	\$185.95
3/4	3/4	1	3	337121	\$117.74	.015	.030	.060	.090	\$131.34
3/4	3/4	1 5/8	4	337122	\$127.62	.015	.030	.060	.090	\$141.22
3/4	3/4	2 1/4	5	337123	\$163.57	.015	.030	.060	.090	\$177.17
3/4	3/4	3 1/4	6	337124	\$184.45	.015	.030	.060	.090	\$198.05
3/4	3/4	4	7	337125	\$288.51	.015	.030	.060	.090	\$302.11
1	1	1 1/4	4	337161	\$203.97	.015	.030	.060	.090	\$217.57
1	1	2	5	337162	\$220.92	.015	.030	.060	.090	\$234.52
1	1	2 5/8	5	337163	\$246.42	.015	.030	.060	.090	\$260.02
1	1	3 1/4	6	337164	\$257.57	.015	.030	.060	.090	\$271.17
1	1	4 1/8	7	337165	\$375.04	.015	.030	.060	.090	\$388.64

NOTE: When ordering with radius, include the part number.
Example: (337XXX(Part#) + .015(radius) = **337052-.015**)



3 FLUTE FINISHER



Tolerance

Cutting Diameter (D1)	Shank Diameter (D2)
1/8"-1/4": +.000"/-.0012"	1/8"-1/4": -.0001"/-.0003"
1/4"-1/2": +.000"/-.0016"	1/4"-1/2": -.0001"/-.0003"
1/2"-1": +.000"/-.0020"	1/2"-1": -.0001"/-.0004"
Runout 0.0005"max (shank to cutting diameter)	
Back Taper 0.0005"max Ball Nose Radius +.000"/-.001"	

EXTENDED NECK

Cutting Dia	Shank Dia	LOC	LBS	OAL	Part# Square	Square Price	Available Radius					Radius Price		
1/4	1/4	7/8	2	4	N337041	\$47.54	.015	.030	.060			\$60.34		
1/4	1/4	7/8	3	5	N337042	\$52.75	.015	.030	.060			\$65.55		
1/4	1/4	1	4	6	N337043	\$55.39	.015	.030	.060			\$68.19		
5/16	5/16	7/8	2	4	N337051	\$57.17	.015	.030	.060			\$69.97		
5/16	5/16	1	3	6	N337052	\$63.49	.015	.030	.060			\$76.29		
3/8	3/8	1	2	4	N337061	\$48.86	.015	.030	.060			\$61.66		
3/8	3/8	1	3	5	N337062	\$63.14	.015	.030	.060			\$75.94		
3/8	3/8	1	4	6	N337063	\$75.07	.015	.030	.060			\$87.87		
1/2	1/2	1	1 7/8	4	N337081	\$67.12	.015	.030	.060			\$79.92		
1/2	1/2	1 1/4	2 1/4	5	N337082	\$98.11	.015	.030	.060			\$110.91		
1/2	1/2	1 1/4	3 1/8	6	N337083	\$119.47	.015	.030	.060	.090	.125	\$132.27		
1/2	1/2	1 1/4	4 1/8	7	N337084	\$144.94	.015	.030	.060	.090	.125	\$157.74		
1/2	1/2	1 1/4	5 1/4	8	N337085	\$164.72	.015	.030	.060	.090	.125	\$177.52		
5/8	5/8	1 1/4	2 1/4	5	N337101	\$133.64	.015	.030	.060	.090	.125	\$147.24		
5/8	5/8	1 1/4	3 1/8	6	N337102	\$172.35	.015	.030	.060	.090	.125	\$185.95		
5/8	5/8	1 1/2	4 1/4	8	N337103	\$230.54	.015	.030	.060	.090	.125	\$244.14		
3/4	3/4	1 1/4	2 1/4	5	N337121	\$163.57	.015	.030	.060	.090	.125	.156	.188	\$177.17
3/4	3/4	1 1/2	3 1/8	6	N337122	\$184.45	.015	.030	.060	.090	.125	.156	.188	\$198.05
3/4	3/4	1 1/2	4 1/4	7	N337123	\$288.51	.015	.030	.060	.090	.125	.156	.188	\$302.11
3/4	3/4	1 1/2	5 1/4	8	N337124	\$327.68	.015	.030	.060	.090	.125	.156	.188	\$341.28
1	1	1 1/2	2 1/4	5	N337161	\$246.42	.015	.030	.060	.090	.125	.156	.188	\$260.02
1	1	1 1/2	3 1/8	6	N337162	\$257.57	.015	.030	.060	.090	.125	.156	.188	\$271.17
1	1	1 1/2	4 1/8	7	N337163	\$375.04	.015	.030	.060	.090	.125	.156	.188	\$388.64
1	1	1 1/2	5 1/4	8	N337164	\$444.16	.015	.030	.060	.090	.125	.156	.188	\$457.76

** 3/8" and over require Flat **

Materials	Milling SFM(Vc)		Chipload per Tooth Recommendations(CPT)							Profiling Radial		Slotting Axial
	Uncoated Min.-Max	ZrN Min.-Max	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1"	ADC	RDC	(ADC)
Wrought Aluminum Alloys	1575 - 6500	1575 - 6550	.0025	.0029	.0033	.0055	.0067	.0082	.0096	1xD	.5xD	1xD
Low- Silicon Aluminum Alloys Si <12.2% - 6061, 7075	1575 - 4500	1575 - 6550	.0022	.0025	.0028	.0052	.0063	.0073	.0090	1xD	.5xD	1xD

For high silicon materials we recommend ZrN Coating



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Same Day Delivery
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3 FLUTE TRUNCATED ROUGHER

- ZrN recommended (up to 30% faster then uncoated)
- Radii available upon request
- Left Hand available upon request
- Flats added
- 37° Helix

FRACTIONAL

Cutting Dia	Shank	LOC	OAL	Part# Square	Square Price	Available Radius				Radius Price
1/4	1/4	3/8	2	339041	\$29.04	.015	.030	.060		\$42.38
1/4	1/4	3/4	2-1/2	339042	\$31.94	.015	.030	.060		\$45.27
1/4	1/4	1	3	339043	\$46.85	.015	.030	.060		\$60.19
1/4	1/4	1-1/4	4	339044	\$53.60	.015	.030	.060		\$66.94
5/16	5/16	1/2	2	339051	\$32.88	.015	.030	.060		\$46.21
5/16	5/16	7/8	2-1/2	339052	\$37.19	.015	.030	.060		\$50.52
5/16	5/16	1	3	339053	\$64.27	.015	.030	.060		\$77.60
5/16	5/16	1-1/4	4	339054	\$70.33	.015	.030	.060		\$83.67
3/8	3/8	1/2	2	339061	\$37.90	.015	.030	.060	.090	\$51.23
3/8	3/8	1	2-1/2	339062	\$43.25	.015	.030	.060	.090	\$56.58
3/8	3/8	1	3	339063	\$48.13	.015	.030	.060	.090	\$61.46
3/8	3/8	1-1/2	4	339064	\$53.00	.015	.030	.060	.090	\$66.33
1/2	1/2	5/8	2-1/2	339081	\$57.40	.015	.030	.060	.090	\$70.73
1/2	1/2	1-1/4	3	339082	\$59.60	.015	.030	.060	.090	\$72.94
1/2	1/2	1-1/2	4	339083	\$73.60	.015	.030	.060	.090	\$86.94
1/2	1/2	2	4	339084	\$87.40	.015	.030	.060	.090	\$100.73
1/2	1/2	2-1/2	5	339085	\$124.98	.015	.030	.060	.090	\$138.31
1/2	1/2	1-1/2	6	339086	\$134.77	.015	.030	.060	.090	\$148.10
1/2	1/2	3-1/8	6	339087	\$155.56	.015	.030	.060	.090	\$168.90
5/8	5/8	3/4	3	339101	\$103.85	.015	.030	.060	.090	\$117.19
5/8	5/8	1-1/4	3-1/2	339102	\$116.35	.015	.030	.060	.090	\$129.69
5/8	5/8	2	4	339103	\$140.25	.015	.030	.060	.090	\$153.58
5/8	5/8	2-1/4	5	339104	\$163.77	.015	.030	.060	.090	\$177.10
5/8	5/8	1-1/2	6	339105	\$198.38	.015	.030	.060	.090	\$211.71
5/8	5/8	3	6	339106	\$211.21	.015	.030	.060	.090	\$224.54
3/4	3/4	1	3	339121	\$135.80	.015	.030	.060	.090	\$149.14
3/4	3/4	1-1/2	4	339122	\$147.20	.015	.030	.060	.090	\$160.53
3/4	3/4	2-1/4	5	339123	\$188.67	.015	.030	.060	.090	\$202.00
3/4	3/4	1-1/2	6	339124	\$212.75	.015	.030	.060	.090	\$226.08
3/4	3/4	3	6	339125	\$212.75	.015	.030	.060	.090	\$226.08
3/4	3/4	4	7	339126	\$332.76	.015	.030	.060	.090	\$346.10
1	1	1-1/2	4	339161	\$235.25	.015	.030	.060	.090	\$248.59
1	1	2-1/4	5	339162	\$254.80	.015	.030	.060	.090	\$268.14
1	1	1-1/2	6	339163	\$297.08	.015	.030	.060	.090	\$310.41
1	1	3	6	339164	\$297.08	.015	.030	.060	.090	\$310.41
1	1	4	7	339165	\$431.98	.015	.030	.060	.090	\$445.31
1-1/4	1-1/4	2	4-1/2	339166	\$483.47	.015	.030	.060	.090	\$496.80
1-1/4	1-1/4	3	6	339167	\$567.41	.015	.030	.060	.090	\$580.75

NOTE: When ordering with radius, include the part number.
Example: (339XXX(Part#) + .015(radius) = **339052-.015**)



3 FLUTE TRUNCATED ROUGHER



Tolerance

Cutting Diameter (D1)	Shank Diameter (D2)
1/8"-1/4": + .000"/- .0012"	1/8"-1/4": - .0001"/- .0003"
1/4"-1/2": + .000"/- .0016"	1/4"-1/2": - .0001"/- .0003"
1/2"-1": + .000"/- .0020"	1/2"-1": - .0001"/- .0004"
Runout 0.0005"max (shank to cutting diameter)	
Back Taper 0.0005"max Ball Nose Radius +.000/- .001"	

EXTENDED NECK

Cutting Dia	Shank Dia	LOC	LBS	OAL	Part# Square	Square Price	Available Radius				Radius Price
1/4	1/4	3/8	1-1/8	3	N339041	\$50.02	.015	.030	.060		\$63.35
1/4	1/4	3/8	2-1/8	4	N339042	\$61.90	.015	.030	.060		\$75.23
3/8	3/8	1/2	1-1/8	3	N339051	\$56.46	.015	.030	.060	.090	\$69.79
3/8	3/8	1/2	2-1/8	4	N339052	\$63.63	.015	.030	.060	.090	\$76.96
1/2	1/2	5/8	1 3/8	3	N339081	\$70.79	.015	.030	.060	.090	\$84.13
1/2	1/2	5/8	2-1/8	4	N339082	\$87.40	.015	.030	.060	.090	\$100.73
1/2	1/2	5/8	3-3/8	6	N339083	\$155.56	.015	.030	.060	.090	\$168.90
5/8	5/8	3/4	1-5/8	4	N339101	\$140.25	.015	.030	.060	.090	\$153.58
5/8	5/8	3/4	2-3/8	5	N339102	\$163.77	.015	.030	.060	.090	\$177.10
5/8	5/8	3/4	3-3/8	6	N339103	\$211.21	.015	.030	.060	.090	\$224.54
3/4	3/4	1	2	4	N339121	\$163.55	.015	.030	.060	.090	\$176.88
3/4	3/4	1	2-1/2	5	N339122	\$188.67	.015	.030	.060	.090	\$202.00
3/4	3/4	1	3-3/8	6	N339123	\$212.75	.015	.030	.060	.090	\$226.08
1	1	1-1/4	2-5/8	5	N339161	\$284.22	.015	.030	.060	.090	\$297.55
1	1	1-1/4	3-3/8	6	N339162	\$297.08	.015	.030	.060	.090	\$310.41
1	1	1-1/4	4-3/8	7	N339163	\$432.57	.015	.030	.060	.090	\$445.90

** 3/8" and over require Flat **

4 FLUTE VARIABLE

- Exxtral Plus® recommended
(up to 30% faster then uncoated)
- Radii available upon request
- Left Hand available upon request
- Flats added



FRACTIONAL

Cutting Dia	Shank	LOC	OAL	Part# Square	Square Price	Available Radius				Radius Price			
1/4	1/4	3/8	2	451041	\$18.77	.015	.030	.060		\$32.10			
1/4	1/4	3/4	2 1/2	451042	\$20.64	.015	.030	.060		\$33.97			
1/4	1/4	1	3	451043	\$27.15	.015	.030	.060		\$40.48			
1/4	1/4	1 -1/4	4	451044	\$32.49	.015	.030	.060		\$45.82			
1/4	1/4	1-3/4	4	451045	\$40.26	.015	.030	.060		\$53.59			
5/16	5/16	1/2	2	451051	\$25.38	.015	.030	.060		\$38.71			
5/16	5/16	7/8	2 1/2	451052	\$28.19	.015	.030	.060		\$41.52			
5/16	5/16	1	3	451053	\$36.47	.015	.030	.060		\$49.80			
5/16	5/16	1-1/4	4	451054	\$42.54	.015	.030	.060		\$55.87			
5/16	5/16	1- 5/8	4	451055	\$57.54	.015	.030	.060		\$70.87			
3/8	3/8	1/2	2	451061	\$28.38	.015	.030	.060	.090	.125	\$41.71		
3/8	3/8	1	2 1/2	451062	\$31.56	.015	.030	.060	.090	.125	\$44.89		
3/8	3/8	1	3	451063	\$35.64	.015	.030	.060	.090	.125	\$48.97		
3/8	3/8	1 1/2	4	451064	\$39.17	.015	.030	.060	.090	.125	\$52.50		
3/8	3/8	2 1/2	5	451065	\$50.70	.015	.030	.060	.090	.125	\$64.03		
1/2	1/2	5/8	2 1/2	451081	\$41.69	.015	.030	.060	.090	.125	\$55.02		
1/2	1/2	1	3	451082	\$46.30	.015	.030	.060	.090	.125	\$59.63		
1/2	1/2	1 1/4	3	451083	\$46.31	.015	.030	.060	.090	.125	\$59.64		
1/2	1/2	1 1/2	4	451084	\$55.82	.015	.030	.060	.090	.125	\$69.15		
1/2	1/2	2	4	451085	\$65.34	.015	.030	.060	.090	.125	\$78.67		
1/2	1/2	2 1/2	5	451086	\$91.98	.015	.030	.060	.090	.125	\$105.31		
1/2	1/2	3	6	451087	\$129.92	.015	.030	.060	.090	.125	\$143.25		
5/8	5/8	3/4	3	451101	\$81.65	.015	.030	.060	.090	.125	\$94.98		
5/8	5/8	1 1/4	3 1/2	451102	\$90.72	.015	.030	.060	.090	.125	\$104.05		
5/8	5/8	1 3/4	4	451103	\$104.70	.015	.030	.060	.090	.125	\$118.03		
5/8	5/8	2 1/4	5	451104	\$118.68	.015	.030	.060	.090	.125	\$132.01		
5/8	5/8	3	6	451105	\$147.11	.015	.030	.060	.090	.125	\$160.44		
3/4	3/4	7/8	3	451121	\$118.70	.015	.030	.060	.090	.125	.156	.188	\$132.04
3/4	3/4	1 1/2	4	451122	\$123.09	.015	.030	.060	.090	.125	.156	.188	\$136.42
3/4	3/4	1 5/8	4	451123	\$123.09	.015	.030	.060	.090	.125	.156	.188	\$136.42
3/4	3/4	2 1/4	5	451124	\$160.30	.015	.030	.060	.090	.125	.156	.188	\$173.63
3/4	3/4	3	6	451125	\$184.89	.015	.030	.060	.090	.125	.156	.188	\$198.22
3/4	3/4	4	7	451126	\$292.08	.015	.030	.060	.090	.125	.156	.188	\$305.41
1	1	1 1/2	4	451161	\$199.15	.015	.030	.060	.090	.125	.156	.188	\$212.49
1	1	2	4 1/2	451162	\$201.18	.015	.030	.060	.090	.125	.156	.188	\$214.51
1	1	2 1/4	5	451163	\$201.18	.015	.030	.060	.090	.125	.156	.188	\$214.51
1	1	3	6	451164	\$255.49	.015	.030	.060	.090	.125	.156	.188	\$268.82
1	1	4	7	451165	\$351.12	.015	.030	.060	.090	.125	.156	.188	\$364.45

NOTE: When ordering with radius, include the part number.

Example: (451XXX(Part#) + .015(radius) = **451052-.015**)



4 FLUTE VARIABLE



Tolerance

Cutting Diameter (D1)	Shank Diameter (D2)
1/8"-1/4": + .000"/- .0012"	1/8"-1/4": - .0001"/- .0003"
1/4"-1/2": + .000"/- .0016"	1/4"-1/2": - .0001"/- .0003"
1/2"-1": + .000"/- .0020"	1/2"-1": - .0001"/- .0004"
Runout 0.0005"max (shank to cutting diameter)	
Back Taper 0.0005"max Ball Nose Radius +.000/- .001"	

EXTENDED NECK

Cutting Dia	Shank Dia	LOC	LBS	OAL	Part# Square	Square Price	Available Radius					Radius Price		
1/4	1/4	3/8	1 1/8	3	N451041	\$31.27	.015	.030	.060				\$44.60	
1/4	1/4	3/8	2 1/8	4	N451042	\$39.40	.015	.030	.060				\$52.73	
3/8	3/8	1/2	2 1/8	4	N451061	\$52.73	.015	.030	.060	.090	.125		\$66.07	
3/8	3/8	1/2	3 3/8	6	N451062	\$67.07	.015	.030	.060	.090	.125		\$80.40	
1/2	1/2	5/8	2 1/8	4	N451081	\$66.62	.015	.030	.060	.090	.125		\$79.95	
1/2	1/2	5/8	3 1/8	5	N451082	\$83.72	.015	.030	.060	.090	.125		\$97.05	
1/2	1/2	5/8	4 1/8	6	N451083	\$96.48	.015	.030	.060	.090	.125		\$109.82	
5/8	5/8	3/4	2 1/8	4	N451101	\$112.45	.015	.030	.060	.090	.125		\$125.78	
5/8	5/8	3/4	3 1/8	5	N451102	\$131.45	.015	.030	.060	.090	.125		\$144.78	
5/8	5/8	3/4	4 1/8	6	N451103	\$146.97	.015	.030	.060	.090	.125		\$160.30	
3/4	3/4	1	2	4	N451121	\$133.52	.015	.030	.060	.090	.125	.156	.188	\$146.85
3/4	3/4	1	3	5	N451122	\$175.95	.015	.030	.060	.090	.125	.156	.188	\$189.28
3/4	3/4	1	4	6	N451123	\$218.98	.015	.030	.060	.090	.125	.156	.188	\$233.32
1	1	1 1/4	2 5/8	5	N451161	\$266.90	.015	.030	.060	.090	.125	.156	.188	\$280.23
1	1	1 1/4	3 1/8	6	N451162	\$339.63	.015	.030	.060	.090	.125	.156	.188	\$352.97
1	1	1 1/4	4 1/8	7	N451163	\$358.42	.015	.030	.060	.090	.125	.156	.188	\$371.75

** 3/8" and over require Flat **



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**5 FLUTE
VARIABLE**



FRACTIONAL

Cutting Dia	Shank	LOC	OAL	Part# Square	Square Price	Available Radius			Radius Price
1/4	1/4	3/8	2.5	558041	\$19.84	.015	.030	.060	\$32.64
1/4	1/4	3/4	2.5	558042	\$22.02	.015	.030	.060	\$34.82
1/4	1/4	1 1/4	3	558043	\$28.95	.015	.030	.060	\$41.75
1/4	1/4	1 1/2	4	558044	\$34.65	.015	.030	.060	\$47.45
1/4	1/4	2	4	558045	\$42.94	.015	.030	.060	\$55.74
5/16	5/16	7/16	2	558051	\$27.07	.015	.030	.060	\$39.87
5/16	5/16	13/16	2.5	558052	\$30.06	.015	.030	.060	\$42.86
5/16	5/16	1 1/4	3	558053	\$38.89	.015	.030	.060	\$51.69
5/16	5/16	1 5/8	4	558054	\$45.38	.015	.030	.060	\$58.18
5/16	5/16	2 1/8	4	558055	\$61.38	.015	.030	.060	\$74.18
3/8	3/8	1/2	2	558061	\$30.28	.015	.030	.060 .090 .125	\$43.08
3/8	3/8	1	2.5	558062	\$33.66	.015	.030	.060 .090 .125	\$46.46
3/8	3/8	1 1/4	3	558063	\$38.02	.015	.030	.060 .090 .125	\$50.82
3/8	3/8	1 1/2	4	558064	\$41.78	.015	.030	.060 .090 .125	\$54.58
3/8	3/8	2	4	558065	\$49.92	.015	.030	.060 .090 .125	\$62.72
3/8	3/8	2 1/2	6	558066	\$79.23	.015	.030	.060 .090 .125	\$92.03
1/2	1/2	5/8	2.5	558081	\$44.46	.015	.030	.060 .090 .125	\$57.26
1/2	1/2	1 1/4	3	558082	\$49.39	.015	.030	.060 .090 .125	\$62.19
1/2	1/2	1 5/8	4	558083	\$59.54	.015	.030	.060 .090 .125	\$72.34
1/2	1/2	2	4	558084	\$69.70	.015	.030	.060 .090 .125	\$82.50
1/2	1/2	2 1/2	5	558085	\$98.11	.015	.030	.060 .090 .125	\$110.91
1/2	1/2	3 1/8	6	558086	\$138.58	.015	.030	.060 .090 .125	\$151.38
5/8	5/8	3/4	3	558101	\$92.52	.015	.030	.060 .090 .125	\$106.12
5/8	5/8	1 5/8	3.5	558102	\$102.82	.015	.030	.060 .090 .125	\$116.42
5/8	5/8	2 1/8	4	558103	\$118.65	.015	.030	.060 .090 .125	\$132.25
5/8	5/8	2 1/2	5	558104	\$134.50	.015	.030	.060 .090 .125	\$148.10
5/8	5/8	3 1/4	6	558105	\$166.72	.015	.030	.060 .090 .125	\$180.32
5/8	5/8	3 3/4	6	558106	\$175.49	.015	.030	.060 .090 .125 .156 .188	\$189.09
3/4	3/4	1	3	558121	\$127.44	.015	.030	.060 .090 .125 .156 .188	\$141.04
3/4	3/4	1 5/8	4	558122	\$132.15	.015	.030	.060 .090 .125 .156 .188	\$145.75
3/4	3/4	2 1/4	5	558123	\$172.10	.015	.030	.060 .090 .125 .156 .188	\$185.70
3/4	3/4	3 1/4	6	558124	\$198.51	.015	.030	.060 .090 .125 .156 .188	\$212.11
3/4	3/4	4	7	558125	\$313.59	.015	.030	.060 .090 .125 .156 .188	\$327.19
1	1	1 1/4	4	558161	\$213.83	.015	.030	.060 .090 .125 .156 .188	\$227.43
1	1	2	5	558162	\$216.00	.015	.030	.060 .090 .125 .156 .188	\$229.60
1	1	2 5/8	6	558163	\$249.34	.015	.030	.060 .090 .125 .156 .188	\$262.94
1	1	3 1/4	6	558164	\$274.31	.015	.030	.060 .090 .125 .156 .188	\$287.91
1	1	4 1/8	7	558165	\$376.99	.015	.030	.060 .090 .125 .156 .188	\$390.59

NOTE: When ordering with radius, include the part number.

Example: (558XXX(Part#) + .015(radius) = **558125-.015**)

EXTENDED NECK



Cutting Dia	Shank Dia	LOC	LBS	OAL	Neck Dia	Part# Square	Square Price	Available Radius			Radius Price
1/4	1/4	7/8	2	4	0.235	N558041	\$42.94	.015	.030	.060	\$55.74
1/4	1/4	7/8	3	5	0.235	N558042	\$52.72	.015	.030	.060	\$65.52
1/4	1/4	1	4	6	0.235	N558043	\$58.46	.015	.030	.060	\$71.26
5/16	5/16	7/8	2	4	0.295	N558051	\$61.38	.015	.030	.060	\$74.18
5/16	5/16	1	3	6	0.295	N558052	\$68.77	.015	.030	.060	\$81.57
3/8	3/8	1	2	4	0.355	N558061	\$49.92	.015	.030	.060	\$62.72
3/8	3/8	1	3	5	0.355	N558062	\$66.69	.015	.030	.060	\$79.49
3/8	3/8	1	4	6	0.355	N558063	\$79.23	.015	.030	.060	\$92.03
1/2	1/2	1	1 7/8	4	0.480	N558081	\$69.70	.015	.030	.060	\$82.50
1/2	1/2	1 1/4	2 1/4	5	0.480	N558082	\$98.11	.015	.030	.060	\$110.91
1/2	1/2	1 1/4	3 1/8	6	0.480	N558083	\$138.58	.015	.030	.060 .090 .125	\$151.38
1/2	1/2	1 1/4	4 1/8	7	0.480	N558084	\$152.43	.015	.030	.060 .090 .125	\$165.23
1/2	1/2	1 1/4	5 1/4	8	0.480	N558085	\$164.62	.015	.030	.060 .090 .125	\$177.42
5/8	5/8	1 1/4	2 1/4	5	0.600	N558101	\$134.50	.015	.030	.060 .090 .125	\$148.10
5/8	5/8	1 1/4	3 1/8	6	0.600	N558102	\$175.49	.015	.030	.060 .090 .125	\$189.09
5/8	5/8	1 1/2	4 1/4	8	0.600	N558103	\$235.52	.015	.030	.060 .090 .125	\$249.12
3/4	3/4	1 1/4	2 1/4	5	0.725	N558121	\$172.11	.015	.030	.060 .090 .125 .156	\$185.71
3/4	3/4	1 1/2	3 1/8	6	0.725	N558122	\$198.14	.015	.030	.060 .090 .125 .156	\$211.74
3/4	3/4	1 1/2	4 1/4	7	0.725	N558123	\$313.60	.015	.030	.060 .090 .125 .156	\$327.20
3/4	3/4	1 1/2	5 1/4	8	0.725	N558124	\$334.36	.015	.030	.060 .090 .125 .156	\$347.96
1	1	1 1/2	2 1/4	5	0.970	N558161	\$249.34	.015	.030	.060 .090 .125 .156	\$262.94
1	1	1 1/2	3 1/8	6	0.970	N558162	\$274.31	.015	.030	.060 .090 .125 .156	\$287.91
1	1	1 1/2	4 1/8	7	0.970	N558163	\$376.99	.015	.030	.060 .090 .125 .156	\$390.59
1	1	1 1/2	5 1/4	8	0.970	N558164	\$458.27	.015	.030	.060 .090 .125 .156	\$471.87



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VARIABLE
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COATED**

FRACTIONAL

Cutting Dia	Shank	LOC	OAL	Part# Square	Square Price	Available Radius	Radius Price
1/4	1/4	3/8	2.5	558041CB	\$24.80	.015 .030 .060	\$37.60
1/4	1/4	3/4	2.5	558042CB	\$27.52	.015 .030 .060	\$40.32
1/4	1/4	1 1/4	3	558043CB	\$36.19	.015 .030 .060	\$48.99
1/4	1/4	1 1/2	4	558044CB	\$43.32	.015 .030 .060	\$56.12
1/4	1/4	2	4	558045CB	\$53.67	.015 .030 .060	\$66.47
5/16	5/16	7/16	2	558051CB	\$33.84	.015 .030 .060	\$46.64
5/16	5/16	13/16	2.5	558052CB	\$37.58	.015 .030 .060	\$50.38
5/16	5/16	1 1/4	3	558053CB	\$48.62	.015 .030 .060	\$61.42
5/16	5/16	1 5/8	4	558054CB	\$56.72	.015 .030 .060	\$69.52
5/16	5/16	2 1/8	4	558055CB	\$76.72	.015 .030 .060	\$89.52
3/8	3/8	1/2	2	558061CB	\$37.84	.015 .030 .060 .090 .125	\$50.64
3/8	3/8	1	2.5	558062CB	\$42.07	.015 .030 .060 .090 .125	\$54.87
3/8	3/8	1 1/4	3	558063CB	\$47.52	.015 .030 .060 .090 .125	\$60.32
3/8	3/8	1 1/2	4	558064CB	\$52.23	.015 .030 .060 .090 .125	\$65.03
3/8	3/8	2	4	558065CB	\$62.40	.015 .030 .060 .090 .125	\$75.20
3/8	3/8	2 1/2	6	558066CB	\$99.04	.015 .030 .060 .090 .125	\$111.84
1/2	1/2	5/8	2.5	558081CB	\$55.57	.015 .030 .060 .090 .125	\$68.37
1/2	1/2	1 1/4	3	558082CB	\$61.74	.015 .030 .060 .090 .125	\$74.54
1/2	1/2	1 5/8	4	558083CB	\$74.43	.015 .030 .060 .090 .125	\$87.23
1/2	1/2	2	4	558084CB	\$87.12	.015 .030 .060 .090 .125	\$99.92
1/2	1/2	2 1/2	5	558085CB	\$122.63	.015 .030 .060 .090 .125	\$135.43
1/2	1/2	3 1/8	6	558086CB	\$173.22	.015 .030 .060 .090 .125	\$186.02
5/8	5/8	3/4	3	558101CB	\$102.45	.015 .030 .060 .090 .125	\$122.45
5/8	5/8	1 5/8	3.5	558102CB	\$113.84	.015 .030 .060 .090 .125	\$134.56
5/8	5/8	2 1/8	4	558103CB	\$131.38	.015 .030 .060 .090 .125	\$153.19
5/8	5/8	2 1/2	5	558104CB	\$148.93	.015 .030 .060 .090 .125	\$171.84
5/8	5/8	3 1/4	6	558105CB	\$184.60	.015 .030 .060 .090 .125	\$209.74
5/8	5/8	3 3/4	6	558106CB	\$194.32	.015 .030 .060 .090 .125 .156 .188	\$220.06
3/4	3/4	1	3	558121CB	\$137.08	.015 .030 .060 .090 .125 .156 .188	\$159.25
3/4	3/4	1 5/8	4	558122CB	\$142.15	.015 .030 .060 .090 .125 .156 .188	\$164.63
3/4	3/4	2 1/4	5	558123CB	\$185.12	.015 .030 .060 .090 .125 .156 .188	\$210.29
3/4	3/4	3 1/4	6	558124CB	\$213.52	.015 .030 .060 .090 .125 .156 .188	\$240.47
3/4	3/4	4	7	558125CB	\$337.31	.015 .030 .060 .090 .125 .156 .188	\$371.99
1	1	1 1/4	4	558161CB	\$223.61	.015 .030 .060 .090 .125 .156 .188	\$251.18
1	1	2	5	558162CB	\$225.88	.015 .030 .060 .090 .125 .156 .188	\$253.60
1	1	2 5/8	6	558163CB	\$260.74	.015 .030 .060 .090 .125 .156 .188	\$290.64
1	1	3 1/4	6	558164CB	\$286.86	.015 .030 .060 .090 .125 .156 .188	\$318.39
1	1	4 1/8	7	558165CB	\$394.24	.015 .030 .060 .090 .125 .156 .188	\$432.48

EXTENDED NECK

Cutting Dia	Shank Dia	LOC	LBS	OAL	Neck Dia	Part# Square	Square Price	Available Radius	Radius Price
1/4	1/4	7/8	2	4	0.235	N558041CB	\$53.68	.015 .030 .060	\$66.48
1/4	1/4	7/8	3	5	0.235	N558042CB	\$65.90	.015 .030 .060	\$78.70
1/4	1/4	1	4	6	0.235	N558043CB	\$73.08	.015 .030 .060	\$85.88
5/16	5/16	7/8	2	4	0.295	N558051CB	\$76.72	.015 .030 .060	\$89.52
5/16	5/16	1	3	6	0.295	N558052CB	\$85.96	.015 .030 .060	\$98.76
3/8	3/8	1	2	4	0.355	N558061CB	\$62.40	.015 .030 .060	\$75.20
3/8	3/8	1	3	5	0.355	N558062CB	\$83.36	.015 .030 .060	\$96.16
3/8	3/8	1	4	6	0.355	N558063CB	\$99.04	.015 .030 .060	\$111.84
1/2	1/2	1	1 7/8	4	0.480	N558081CB	\$87.12	.015 .030 .060	\$99.92
1/2	1/2	1 1/4	2 1/4	5	0.480	N558082CB	\$122.64	.015 .030 .060	\$135.44
1/2	1/2	1 1/4	3 1/8	6	0.480	N558083CB	\$173.22	.015 .030 .060 .090 .125	\$186.02
1/2	1/2	1 1/4	4 1/8	7	0.480	N558084CB	\$190.54	.015 .030 .060 .090 .125	\$203.34
1/2	1/2	1 1/4	5 1/4	8	0.480	N558085CB	\$205.78	.015 .030 .060 .090 .125	\$218.58
5/8	5/8	1 1/4	2 1/4	5	0.600	N558101CB	\$148.93	.015 .030 .060 .090 .125	\$171.84
5/8	5/8	1 1/4	3 1/8	6	0.600	N558102CB	\$194.32	.015 .030 .060 .090 .125	\$220.06
5/8	5/8	1 1/2	4 1/4	8	0.600	N558103CB	\$260.78	.015 .030 .060 .090 .125	\$290.68
3/4	3/4	1 1/4	2 1/4	5	0.725	N558121CB	\$185.12	.015 .030 .060 .090 .125 .156	\$210.29
3/4	3/4	1 1/2	3 1/8	6	0.725	N558122CB	\$213.12	.015 .030 .060 .090 .125 .156	\$240.04
3/4	3/4	1 1/2	4 1/4	7	0.725	N558123CB	\$337.32	.015 .030 .060 .090 .125 .156	\$372.00
3/4	3/4	1 1/2	5 1/4	8	0.725	N558124CB	\$359.64	.015 .030 .060 .090 .125 .156	\$395.72
1	1	1 1/2	2 1/4	5	0.970	N558161CB	\$260.75	.015 .030 .060 .090 .125 .156	\$290.64
1	1	1 1/2	3 1/8	6	0.970	N558162CB	\$286.86	.015 .030 .060 .090 .125 .156	\$318.39
1	1	1 1/2	4 1/8	7	0.970	N558163CB	\$394.24	.015 .030 .060 .090 .125 .156	\$432.48
1	1	1 1/2	5 1/4	8	0.970	N558164CB	\$458.27	.015 .030 .060 .090 .125 .156	\$522.79

NOTE: When ordering with radius, include the part number.
Example: (558XXX(Part#) + .015(radius) = 558125CB-.015)





15121 GRAHAM #107, HUNTINGTON BEACH CA 92649

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Materials		Carbon Steel	Alloy Steel	Stainless Steel 300 Series	Stainless Steel 400 Series	Precipitation Stainless Steel	Gray Cast Iron	Ductile Cast Iron	High Temp Alloys	Titanium Pure	Titanium Cast / Wrought
Diameter	Description	10XX, 11XX, 12XX, 13XX	40XX, 41XX, 42XX, 43XX, 44XX, 46XX, 86XX, Series	304, 304L, 316, 316L, 312	420, 420F, 416, 440L	15-5PH,16-6PH, 17-4PH, AM-XX Series	Gray	Ductile	Inconel 625/718, A286, Haynes	Pure	Cast / Wrought 6AL4V, ASTM 1,2,3, Alpha - Beta
	SFM < 32Rc SFM > 32Rc	200 - 450 100 - 250	150 - 300 80 - 200	150 - 350 80 - 200	200 - 450 100 - 250	80 - 250 90 - 125	250 - 450 130 - 300	120 - 350 80 -140	70 - 120 40 - 90	140 - 220 90 - 160	140 - 200 90 - 160
1/4"	S	0.0014	0.0011	0.0014	0.0014	0.0011	0.0007	0.0013	0.0009	0.0011	0.0013
	HP	0.0016	0.0013	0.0016	0.0016	0.0013	0.0009	0.0015	0.0012	0.0013	0.0015
	LP	0.0019	0.0016	0.0019	0.0019	0.0016	0.0011	0.0017	0.0014	0.0016	0.0017
	F	0.0035	0.0028	0.0035	0.0035	0.0028	0.0020	0.0031	0.0025	0.0028	0.0031
5/16"	S	0.0013	0.0011	0.0013	0.0013	0.0011	0.0009	0.0013	0.0011	0.0011	0.0013
	HP	0.0016	0.0013	0.0016	0.0016	0.0013	0.0013	0.0016	0.0016	0.0013	0.0016
	LP	0.0019	0.0015	0.0019	0.0019	0.0015	0.0015	0.0019	0.0019	0.0015	0.0019
	F	0.0033	0.0027	0.0033	0.0033	0.0027	0.0027	0.0033	0.0033	0.0027	0.0033
3/8"	S	0.0018	0.0015	0.0018	0.0018	0.0015	0.0012	0.0018	0.0015	0.0015	0.0018
	HP	0.0021	0.0017	0.0021	0.0021	0.0017	0.0017	0.0021	0.0021	0.0017	0.0021
	LP	0.0025	0.0020	0.0025	0.0025	0.0020	0.0020	0.0025	0.0025	0.0020	0.0025
	F	0.0045	0.0036	0.0045	0.0045	0.0036	0.0036	0.0045	0.0045	0.0036	0.0045
1/2"	S	0.0028	0.0022	0.0025	0.0025	0.0022	0.0014	0.0025	0.0018	0.0022	0.0022
	HP	0.0033	0.0026	0.0029	0.0029	0.0026	0.0019	0.0029	0.0024	0.0026	0.0029
	LP	0.0037	0.0029	0.0033	0.0033	0.0029	0.0021	0.0033	0.0026	0.0029	0.0035
	F	0.0066	0.0053	0.0059	0.0059	0.0053	0.0038	0.0059	0.0047	0.0053	0.0063
5/8"	S	0.0030	0.0024	0.0030	0.0030	0.0024	0.0020	0.0030	0.0025	0.0024	0.0030
	HP	0.0051	0.0041	0.0051	0.0051	0.0041	0.0032	0.0051	0.0040	0.0041	0.0051
	LP	0.0079	0.0063	0.0079	0.0079	0.0063	0.0048	0.0079	0.0060	0.0063	0.0079
	F	0.0142	0.0113	0.0142	0.0142	0.0113	0.0086	0.0142	0.0108	0.0113	0.0142
3/4"	S	0.0038	0.0024	0.0035	0.0035	0.0024	0.0022	0.0038	0.0028	0.0024	0.0035
	HP	0.0049	0.0030	0.0045	0.0045	0.0030	0.0029	0.0045	0.0036	0.0030	0.0045
	LP	0.0055	0.0034	0.0050	0.0050	0.0034	0.0040	0.0050	0.0050	0.0034	0.0050
	F	0.0086	0.0065	0.0089	0.0089	0.0065	0.0064	0.0086	0.0080	0.0065	0.0086
1"	S	0.0045	0.0045	0.0042	0.0042	0.0045	0.0028	0.0050	0.0035	0.0045	0.0050
	HP	0.0055	0.0053	0.0052	0.0052	0.0053	0.0034	0.0059	0.0043	0.0053	0.0059
	LP	0.0065	0.0059	0.0065	0.0065	0.0059	0.0042	0.0065	0.0053	0.0059	0.0065
	F	0.0105	0.0094	0.0105	0.0105	0.0094	0.0068	0.0105	0.0085	0.0094	0.0105

S = SLOTTING

Axial Depth up to 1.0 x Diameter

HP = HEAVY PERIPHERAL

Axial Depth up to 1.5 x Diameter
 Radial with .25 x Diameter

LP = LIGHT PERIPHERAL

Axial Depth up to 2.0 x Diameter
 Radial with .15 x Diameter

F = FINISH

Axial Depth up to Length Of Cut
 2.5 X Diameter Reduce SFM by 20%
 Radial with .015 x Diameter